MR41XX Series
Magnetic Stripe card reader
RS-232 Interface

User‘s manual

INFORMATION

1. Decoder

For ISO 7811-4 or ANSI 3554 standard

MR4110 (magnetic Card Track 1 version)
MR4120 (magnetic Card Track 2 version)
MR4140 (magnetic Card Track 2 version)
MR4130 (magnetic Card Track 1 & Track 2 version)
MR4160 (magnetic Card Track 2 & Track 3 version)
MR4170 (magnetic Card Track 1 & Track 2 & Track 3 version)

Nun-ISO standard format

MR4220 (magnetic reader for IBM passbook format version)
MR4240 (magnetic reader for ISO 8484 format version)
MR4270 (magnetic card reader Track 1 & 2 & 3 all alphanumeric format version)
MR4280 (magnetic card for JIS II standard format version)
MR4290 (magnetic card for JIS I & JIS II format combined reader version)

2. Standard Package

Main Decoder Unit

3. Option

Power Supply Adaptor DC 12V / 120VAC
Power Supply Adaptor DC 12V / 220VAC

This device complies with Part 15 for the FCC Rules. Operation is subject to the following two condition : (1) This device may not cause harmful interference. and (2) this device must accept any interference received. including interference that may cause undesired operation.

1. Introduction:

The model MR41XX series is magnetic stripe card reader with RS-232 interface output. The product designed with the state-of-the-art microprocessor magnetic stripe card reader technology, is totally compatible with the PC series port or any computer with RS-232C interface input. The product is capable of reading data encoder on magnetic cards that meet ANSI or ISO or for American driver license format (AAMVA / CDL) through the reader slot.

One block of switch settings is located on the reader bottom. This block of switch settings is used to select RS-232 communication parameters and desired user protocol.

A two color LED indicators on the reader panel and a buzzer inside the reader provide the operator with continuous status of the reader operations.

The major functions of MR4100 series reader are :

A. Baud Rate selectable.

B. Parity selectable.

C. STX / ETX selectable.

D. CR (Carriage Return) selectable.

E. Track 3 SS (start sentinel character) selectable.

F. Disable or enable the SS / ES selectable.

G. Two-way reading magnetic card.

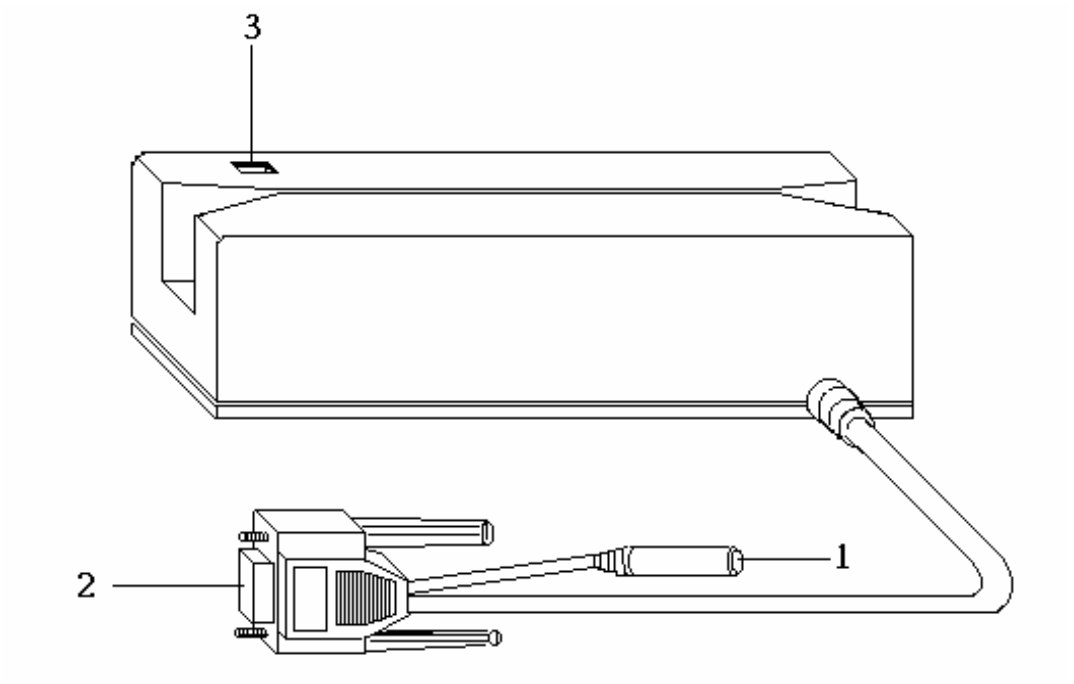
H. Generates audible beep when reading is successful or error.

I. Power is supply by external power.

M. Supply adaptor DC 12V.

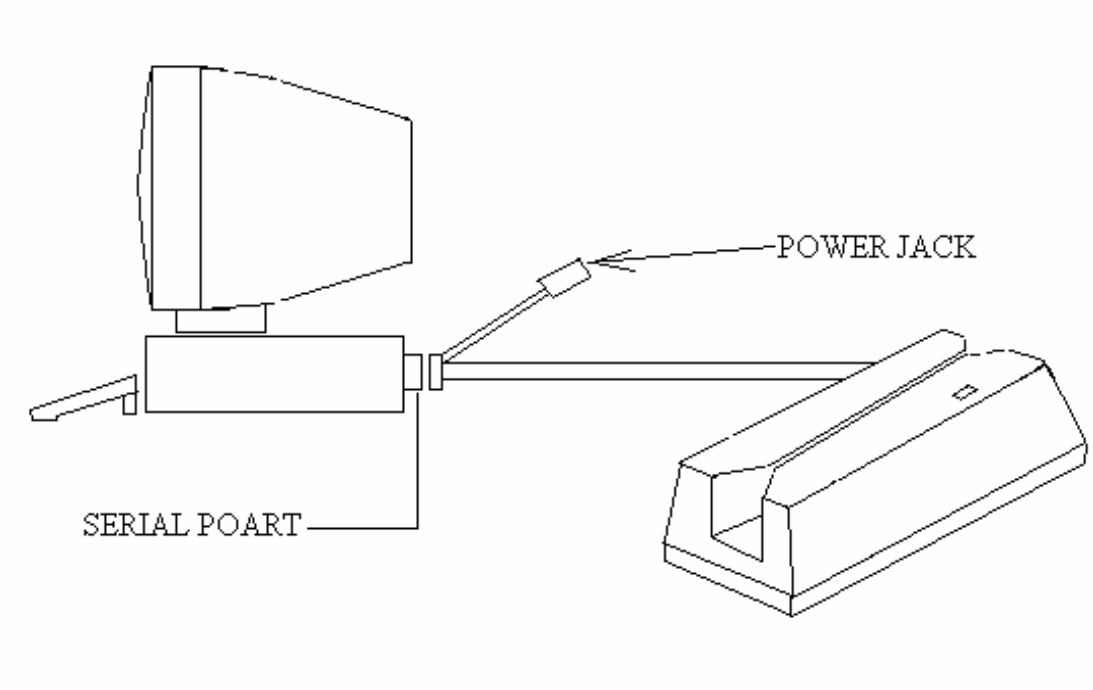
2. INSTALLATION

A. Basic configuration



1. DC power jack for +12V/DC power input.
2. RS-232 9 pin female connector: to be connected with the computer serial port.
3. The two color LED indicator is on the top portion , When card reader is power ON, READY signal (GREEN LED) will be illuminated, the reader is ready to read . The error signal (RED LED) will be illuminated when card reader error is encountered.

B. Install the reader



1. Setting function DIP switches. (see switch block settings)
2. Connect the reader to computer. (see Figure 2-2)
3. Plug in the DC power adaptor to the power jack on the reader D-SUB 9 pin .

Note : 1. Make sure the DC power adaptor is unplugged from the power line before you plug the adaptor to the reader.
2. Make sure the power input connector. (see figure 2-3)

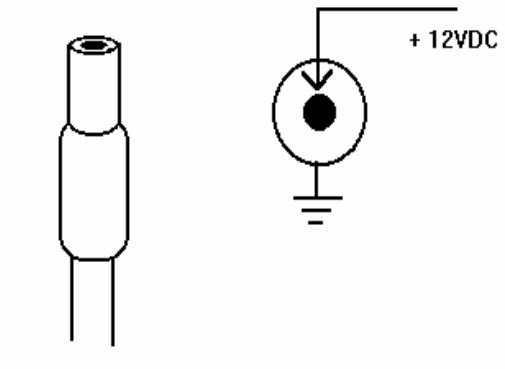


Figure 2-3

4. Plug the adaptor to the power line.
5. the green LED will keep illuminating to be ready to a card.

C. Switch block settings.

The switch block is located on the bottom of the reader. The switch block contains switches numbered 1-8. There switches must be set while the power off to ensure that the switch settings are properly loaded.

Switch 1, 2 : There two switches set the Baud Rate. See table 1.

Switch 3, 4 : There two switches set the Parity. See table 2.

Switch 5 : This is an optional switch that sends the Start of Text (STX) and End of Text (ETX) framing characters when set to the ON positing. If the framing characters are not desire, set switch 5 to OFF position.

Switch6 : This is an optional switch that sends the Carriage Return (CR) when set to the ON position. If this control character is not desired set switch 6 to the OFF position.

Switch7 : This is an optional switch that sends the Start Sentinel (SS) and End of Sentinel (ES) framing characters when set to the ON position. If the framing characters are not desired, set switch 7 to the OFF position.

Switch8 : This is an optional switch that sends the (SS) symbol type for Track 3. ON " + " represent SS for ISO Track 3 , OFF " ; " represent SS for ISO Track 3 .

Table1

Baud Rate	SW1	SW2
1200	OFF	OFF
2400	ON	OFF
4800	OFF	ON
9600	ON	ON

Table 2

Parity	SW3	SW4
EVEN	ON	ON
ODD	ON	OFF
SPACE	OFF	ON
MARK	OFF	OFF

** Factory presets switches as below :

SW1 - ON
SW2 - ON
SW3 - ON
SW4 - OFF
SW5 - ON
SW6 - ON
SW7 - ON
SW8 - ON

PARATMENT SETTING : 9600 O 7 1

3. OPERATION

The two color LED will be keep green illuminating, if the installation is OK.

A. Status Indicators

There is a two color LED indicator on the panel to alert the operator .
There is also a buzzer inside the reader to provide an audio alert.

1. LED - Ready or Error indicator

The LED will keep the green color illuminating when the reader is ready to read a magnetic stripe card. When an error detected a card the LED will change to red color momentarily, after automatically change to green color

2. Buzzer

The buzzer will beep once when a magnetic card is read successfully, and 3 beeps when read error is deleted.

B. How to read a Magnetic Stripe Card

You may swipe a card though the reader slot, the LED go out momentarily when a properly encoded card is swiped though the reader. The buzzer will beep once and the LED will be light green color when all valid data are transmitted to computer and the reader is ready to accept another card. when a card is not properly swiped or can‘t be read, The buzzer will beeps third and LED will be light red color a momentarily and turn to green color.

C. How to send the data to computer

All the data read by the reader will be send immediately to the computer though the RS-232 cable. If the auto Carriage Return switch is enabled, a carriage return character will be appended on each data.

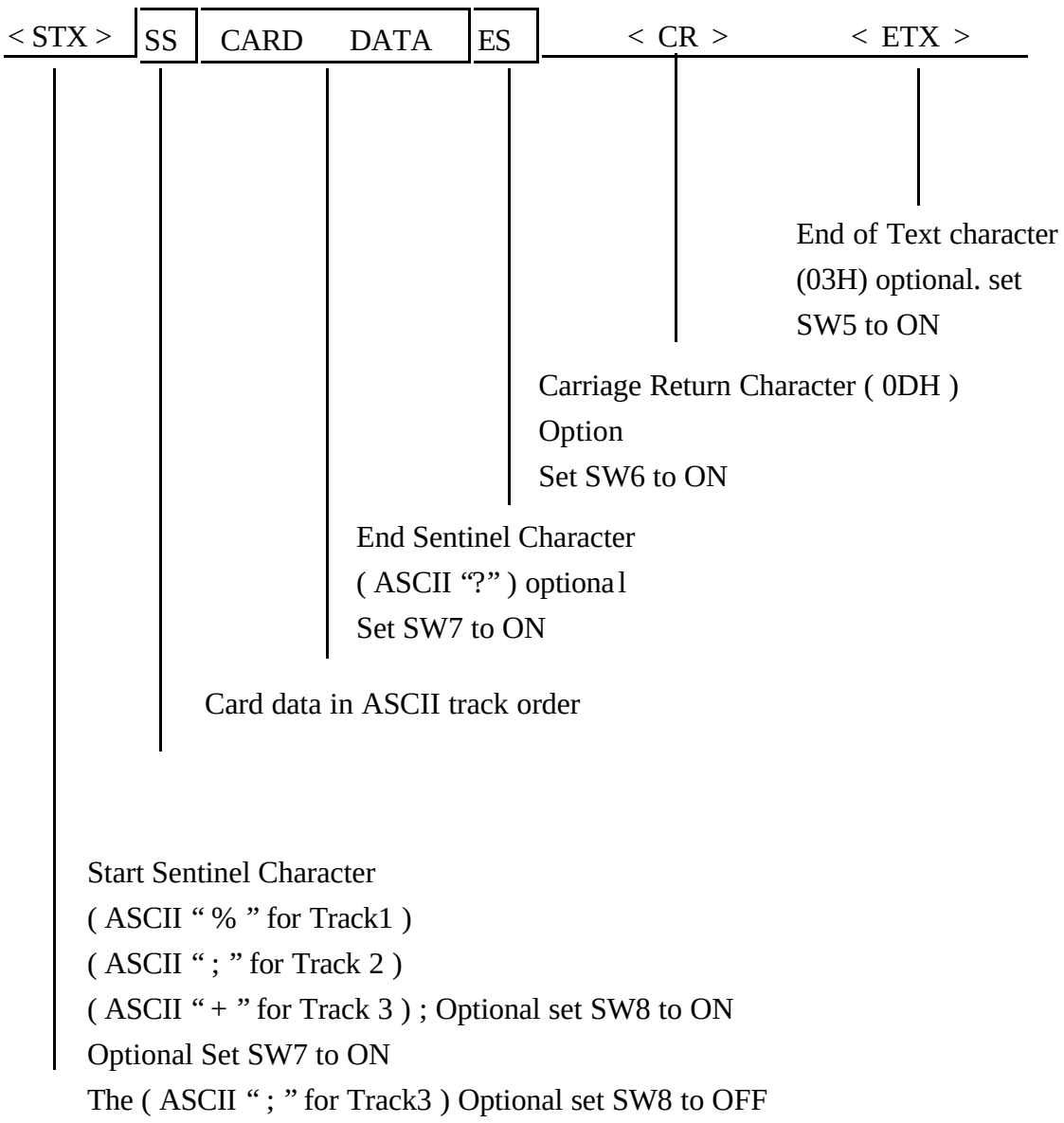
The reader does not need to receive commands from the host in order to transmit data.

4. READER TO HOST MESSAGE FORMAT

A. Magnetic stripe card

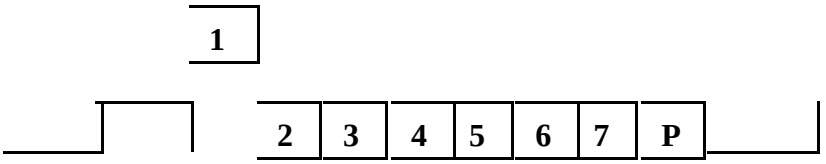
Figure 4-1 shows, The data format transmitted after a card is read successfully. The Track data is sent in the following order :

Figure 4-1


< STX >
SS
CARD DATA
ES
< CR >
< ETX >
End of Text character
(03H) optional. set
SW5 to ON
Carriage Return Character (0DH)
Option
Set SW6 to ON
End Sentinel Character
(ASCII "?") optional
Set SW7 to ON
Card data in ASCII track order
Start Sentinel Character
(ASCII " % " for Track1)
(ASCII " ; " for Track 2)
(ASCII " + " for Track 3) ; Optional set SW8 to ON
Optional Set SW7 to ON
The (ASCII " ; " for Track3) Optional set SW8 to OFF
Start of Text character (02H)
Optional. set SW5 to ON

5. TRANSMISSION DETAILS

Each ASCII character is transmitted with 1 start bit, 7 data bits, 1 parity and 1 stop bit (as shown below). Logic levels conform to standard RS-232 levels (i.e., data bits are considered " true " or " 1" if the level is low).



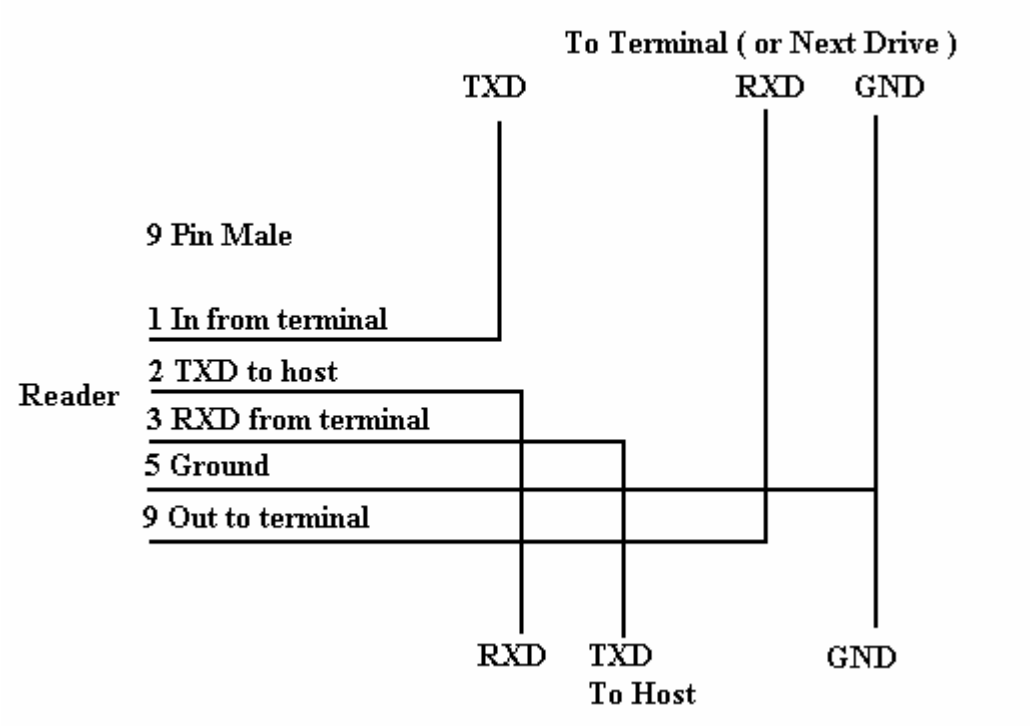
6. PIN ASSIGNMENT

MR4100 reader 9 P Female	To 25 PIN Connector
1	NC
2 (TXD)	3
3 (RXD)	2
4 (DTR)	NC
5 (GND)	7
6 (DSR)	NC
7 (RTS)	NC
8 (CTS)	NC
9	NC

Short connection

7. HOST & TERMINAL CONNECTION TO READER

It is possible to connect a reader to both host and terminal via Y cable and it is also possible to connect next device by daisy chain via Y cable



Host and Terminal Connection to Reader Via Y cable

8. SPECIFICATIONS

A. Reference card standard : ANSI / ISO / JIS / CDL / AAMVA

B. Head Lifetime : Min. 500,000 passes

C. Speed

3-75 IPS at 75 BPI

3-75 IPS at 210 BPI

D. Power input

12VDC 300 mA

E. Connectors

1. RS-232 Output : 9 Pin D-sub Female
2. Power Input : + 12 VDC (The power cable center is +12V)

F. Power Consumption :

MR4110,MR4120,MR4140 : 20 mA at 12VDC

MR4130,MR4160 : 30 mA at 12VDC

MR4170 : 40 mA at 12VDC

G.Environmental Requirement

Operating Temperature : 0 ℃ - 50℃

Operating Humidity : 30 - 95%